

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 August 2000 (31.08.2000)

PCT

(10) International Publication Number
WO 00/50074 A3

(51) International Patent Classification⁷: A61K 39/095, C12N 1/21, C07K 14/22, A61K 39/40, C12N 15/31, A61P 31/04 // (C12N 1/21, C12R 1:36)

Salisbury, Wiltshire SP4 0JG (GB). KROLL, John, Simon [GB/GB]; Imperial College School of Medicine, St. Mary's Hospital, Norfolk Place, London W2 1PG (GB). CARTWRIGHT, Keith [GB/GB]; Public Health Laboratory Service, Headquarters Office, 61 Colindale Avenue, London NW9 5DF (GB).

(21) International Application Number: PCT/GB00/00624

(74) Agents: SCHLICH, George, William et al.; Mathys & Squire, 100 Gray's Inn Road, London WC1X 8AL (GB).

(22) International Filing Date: 22 February 2000 (22.02.2000)

(81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(25) Filing Language: English

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(26) Publication Language: English

Published:

- With international search report.
- Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

(30) Priority Data:
9904028.9 22 February 1999 (22.02.1999) GB
9922561.7 23 September 1999 (23.09.1999) GB

(88) Date of publication of the international search report:
28 December 2000

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



A3

WO 00/50074

(54) Title: NEISSERIAL VACCINE COMPOSITIONS AND METHODS

(57) Abstract: Methods and compositions for the treatment of microbial infection, and in particular meningococcal disease, comprise a commensal *Neisseria* or an extract of a commensal *Neisseria*. Further methods and compositions comprise commensal *Neisseria* which express genes from virulent strains of *Neisseria* and/or heterologous gene products from non-neisserial sources. Such compositions are used in vaccine preparations for the treatment of microbial infection.

INTERNATIONAL SEARCH REPORT

Int'l. application No
PCT/GB 00/00624

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A61K39/095 C12N1/21 C07K14/22 A61K39/40 C12N15/31
 A61P31/04 //((C12N1/21,C12R1:36))

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 A61K C07K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, MEDLINE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CANN K J ET AL: "DETECTION OF ANTIBODIES TO COMMON ANTIGENS OF PATHOGENIC AND COMMENSAL NEISSERIA SPECIES" JOURNAL OF MEDICAL MICROBIOLOGY, vol. 30, no. 1, 1989, pages 23-32, XP000946799 ISSN: 0022-2615 abstract page 23, left-hand column, line 23 -right-hand column, line 3,20-25 page 24, left-hand column, paragraph 2 page 30, right-hand column, paragraphs 2,3	1-10, 17-25, 27,28,36
A	— —/—	11-16, 26, 29-35, 37,38

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

4 October 2000

Date of mailing of the international search report

17/10/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Covone, M

INTERNATIONAL SEARCH REPORT

Inte... Inte... Application No

PCT/GB 00/00624

C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GOMEZ J A ET AL: "Antigenicity, cross-reactivity and surface exposure of the <i>Neisseria meningitidis</i> 37 kDa protein (Fbp)." VACCINE, vol. 14, no. 14, 1996, pages 1340-1346, XP004070969 ISSN: 0264-410X abstract page 1340, right-hand column, paragraph 2 page 1343, right-hand column, paragraph 2 page 1345, right-hand column, paragraph 5 table 1 figure 1	1-7, 10, 11, 17-23, 27, 28, 35
X	DATABASE BIOSIS 'Online! BIOSCIENCES INFORMATION SERVICE, PHILADELPHIA, PA, US; 1988 AOUN L ET AL: "HUMAN ANTIBODY RESPONSE TO THE 70-KD COMMON NEISSERIAL ANTIGEN IN PATIENTS AND CARRIERS OF MENINGOCOCCI OR NON-PATHOGENIC NEISSERIA" Database accession no. PREV198886026860 XP002149186 abstract & ANNALES DE L'INSTITUT PASTEUR MICROBIOLOGY, vol. 139, no. 2, 1988, pages 203-212, ISSN: 0769-2609	1, 5, 9, 17-20, 27, 28, 36
X	WO 96 29412 A (IAF BIO VAC INC ; BRODEUR BERNARD R (CA); MARTIN DENIS (CA); HAMEL) 26 September 1996 (1996-09-26) page 5, line 24 -page 6, line 12 page 13, line 31 -page 14, line 14	1, 5, 7, 17-20, 27, 28, 36
P, X	TRONCOSO G ET AL: "Antigenic cross-reactivity between outer membrane proteins of <i>Neisseria meningitidis</i> and commensal <i>Neisseria</i> species." FEMS IMMUNOLOGY AND MEDICAL MICROBIOLOGY, vol. 27, no. 2, February 2000 (2000-02), pages 103-109, XP000946807 ISSN: 0928-8244 page 104, left-hand column, paragraph 2 page 108, left-hand column, paragraphs 3, 4	1-10, 17-25, 27, 28, 36

INTERNATIONAL SEARCH REPORT

Information on patient family members

International Application No.

PCT/GB 00/00624

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 9629412	A	26-09-1996	AU 716225 B	24-02-2000
			AU 4934396 A	08-10-1996
			BR 9607651 A	17-11-1998
			CA 2215161 A	26-09-1996
			CZ 9702914 A	14-01-1998
			EP 0815234 A	07-01-1998
			HU 9702387 A	28-05-1998
			JP 11500624 T	19-01-1999
			NO 974264 A	13-11-1997
			PL 322363 A	19-01-1998
			SI 9620035 A	31-12-1998
			SK 125597 A	03-06-1998